Evaluating Digital Health Solutions for Rural Chronic Disease Management

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Clinical Pharmacist

Thank You!

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Project Overview

Project Lead: Dr. Carly Brown

Description: This project aims to assess and enhance the use of telehealth-enabled digital solutions—primarily Remote Patient Monitoring (RPM) and AI support to improve chronic disease management for rural populations.

Objectives:

- Implement and/or evaluate the effectiveness of chronic disease programs for chronic disease and special population management programs powered by Telehealth.
- Evaluate sustainability and potential cost savings resulting from RPM implementation
- Identify opportunities for improving and expanding telehealth strategies in chronic disease management such as AI-enhanced workflows that inform future integration

RPM Program

- RPM program overview
  - Telehealth-enabled chronic disease management model
- Core components:
  - Remote monitoring
  - Nurse, pharmacist, and specialist collaboration
- Focus conditions:
  - Congestive heart failure (CHF)
  - Chronic obstructive pulmonary disease (COPD)
  - Diabetes (DM)
  - Hypertension (HTN)
  - Special populations

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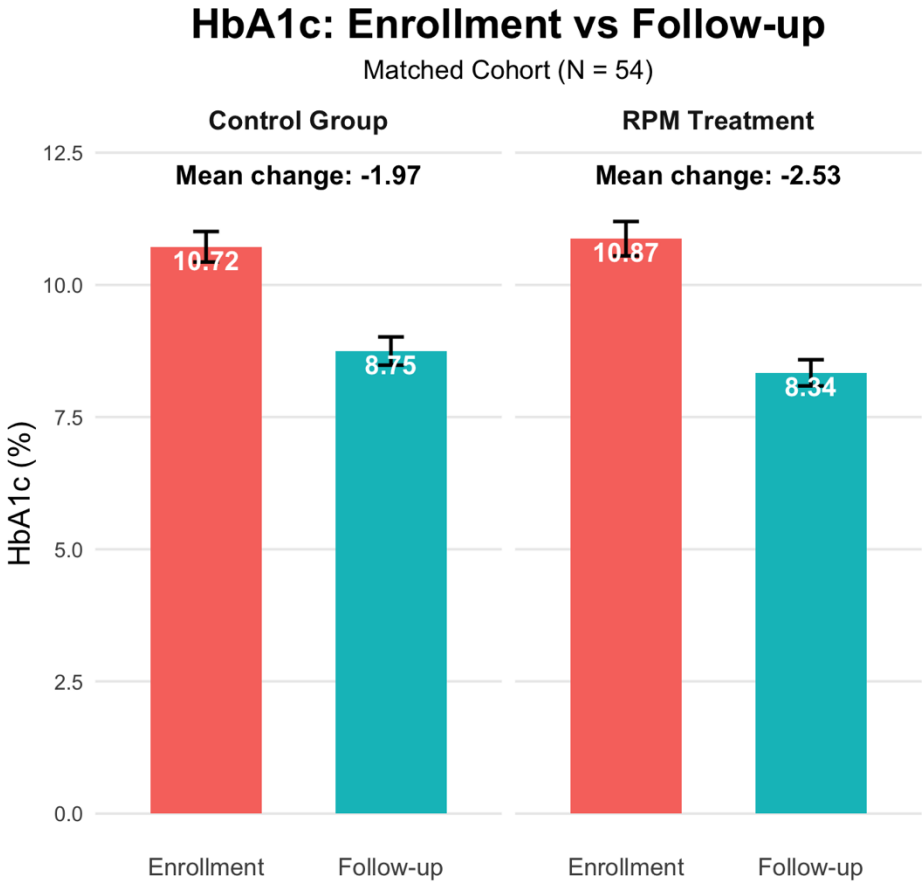
Clinical Programs: Overview and Outcomes

Diabetes RPM Program

- Objective
  - Evaluate long-term implementation of a multidisciplinary RPM program for uncontrolled diabetes
- Patient Reach
  - July 2020 and December 2022
  - 109 insulin-treated adults enrolled
- Key Findings
  - Significant HbA1c reduction among RPM participants
  - Greater improvement compared with matched controls
  - Largest reductions observed among program completers



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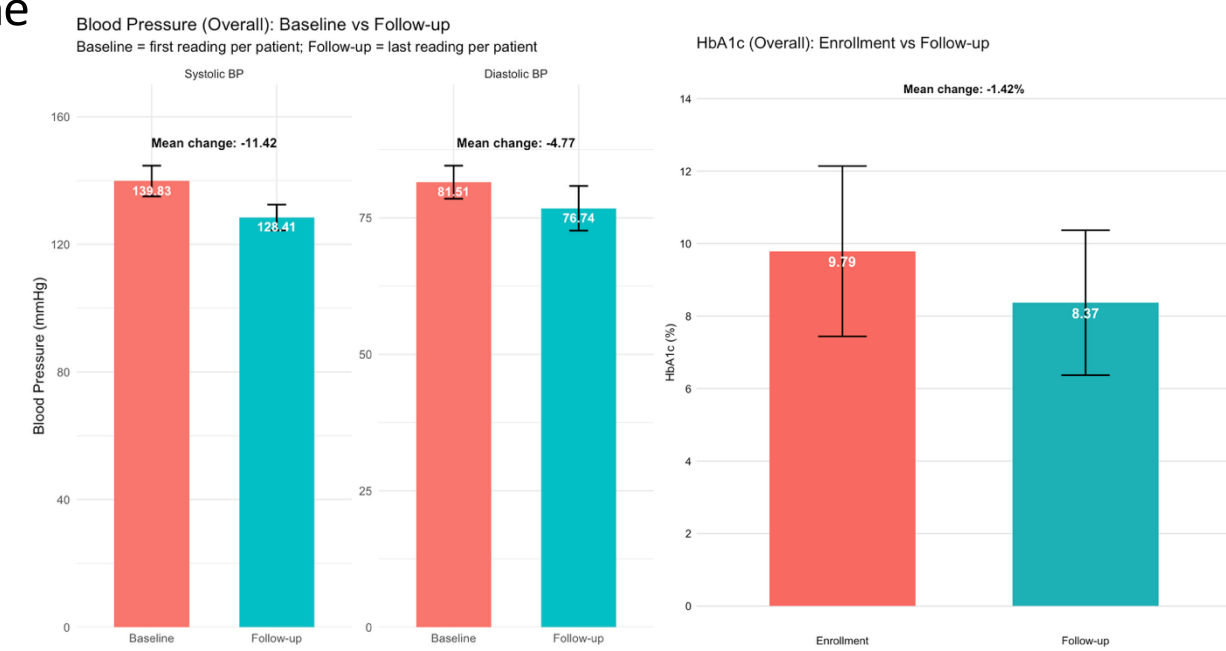
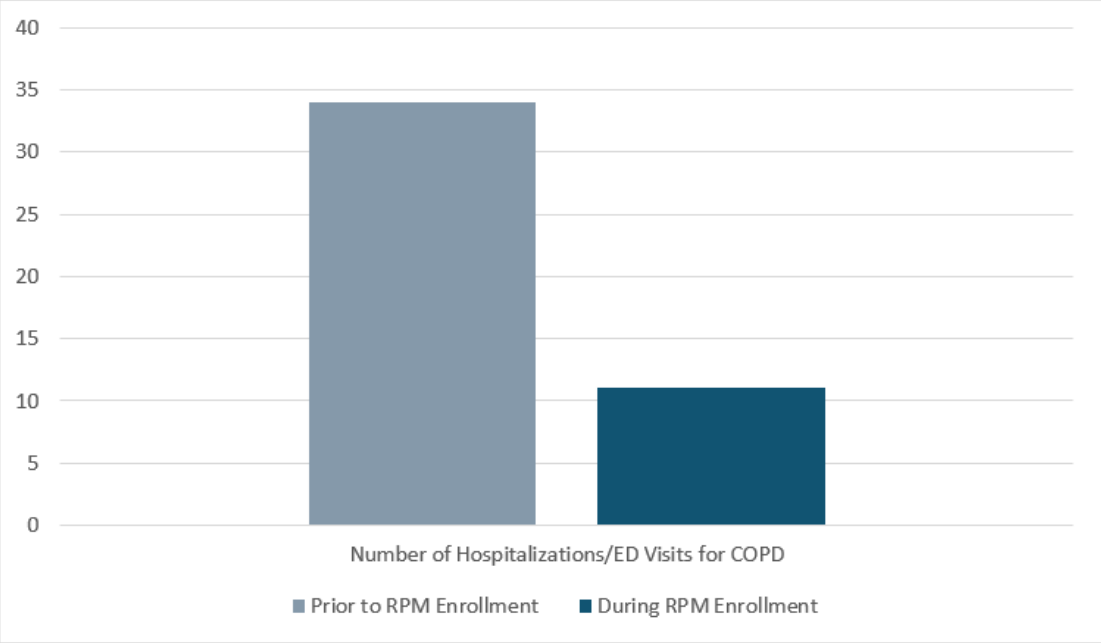
Family Medicine RPM Program

- Objective
  - Evaluate an interprofessional RPM program for hypertension and diabetes within family medicine clinics
- Patient Reach
  - January 2020 to April 2024
  - Hypertension: 70 patients
  - Diabetes: 24 patients
- Key Findings
  - Hypertension: Systolic BP ↓ 11 mmHg, Diastolic BP ↓ 5 mmHg
  - Diabetes: HbA1c ↓ 1.4%
  - Largest BP improvements among patients with uncontrolled baseline BP



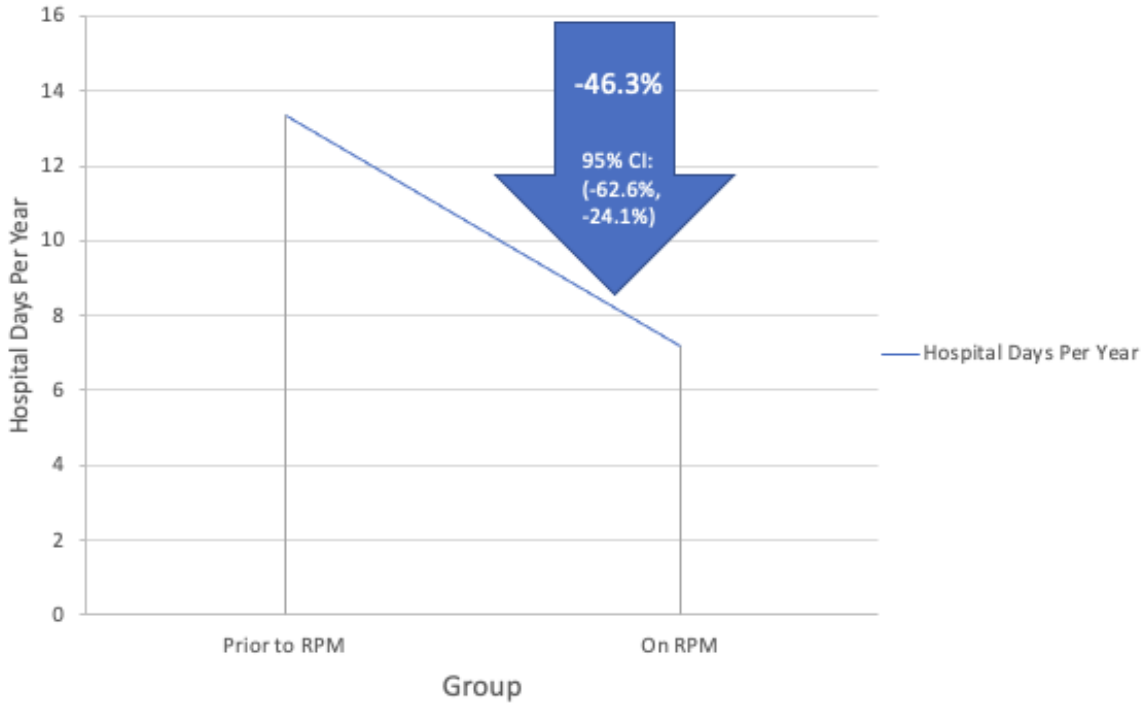
COPD RPM Program

- Objective:
  - Evaluate impact of a nurse- and pharmacist-led RPM program on COPD-related utilization
- Patient Reach:
  - January 2023 and August 2025
  - 30 patients
- Key Outcomes:
  - 68% reduction in acute care utilization ($p < 0.001$) compared to the year prior



CHF RPM Program

- Objective:
  - Evaluate a nurse-led RPM program for CHF using daily biometric monitoring and structured outreach
- Patient Reach:
  - January 2023 and July 2025
  - 103 patients enrolled
  - 83 completed RN onboarding and included in the analysis
- Key Outcomes:
  - ~50% reduction in hospital days per year during RPM participation compared with the prior year
  - Estimated Hospital Cost Savings Per Patient Per Year = $11,224.53



Decline in Hospital Days Per Year, before and after RPM Program

Clinical Improvements Across Conditions

Outcome	Result
HbA1c improvement	Up to 3.34% reduction
Systolic BP reduction	Up to 14.6 mmHg reduction
COPD utilization	68% reduction
CHF hospital days	Nearly 50% reduction

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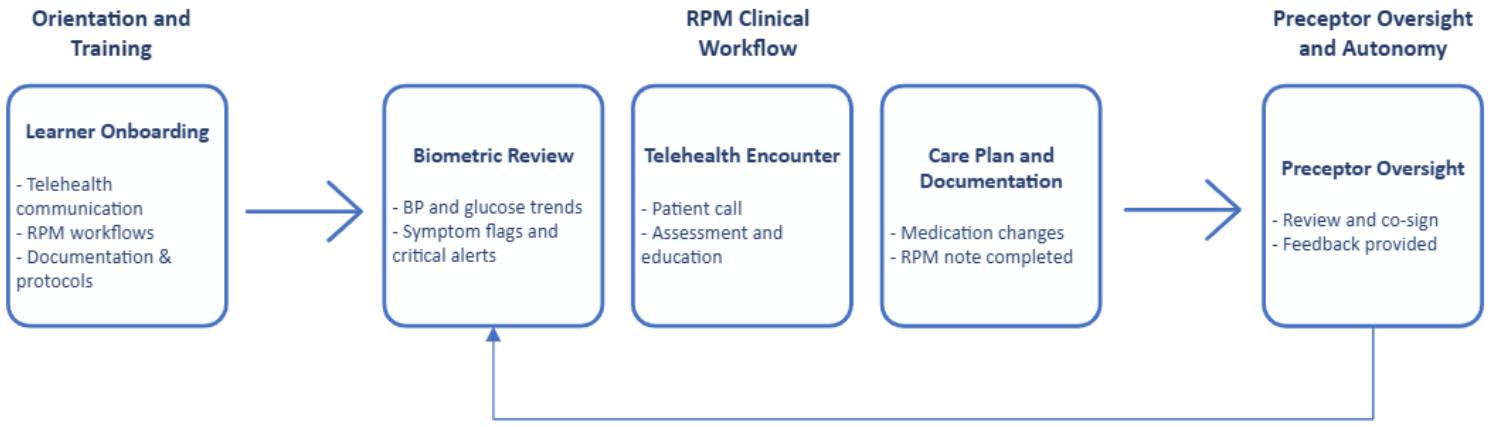
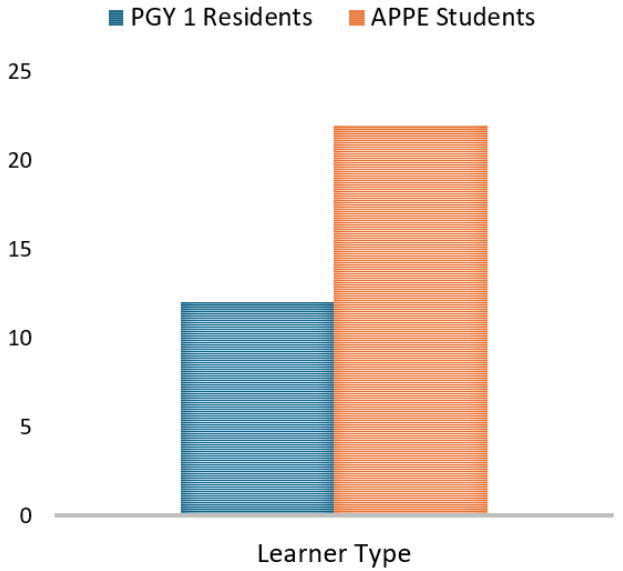
Workforce Development

Telehealth Preceptor Model

- Embeds pharmacy students and residents into an established RPM program
- Learner reach (2021-2025):
  - 12 post graduate year 1 (PGY1) residents and 22 student pharmacists
  - ~8,000 leaner hours contributed to RPM services





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External Collaboration

American Heart Association Telehealth Collaborative

Partnership Scope

- 13 health systems and 30 clinics nationwide
- Goal: Prioritize quality and standardize care delivery in telehealth

Initiative Timeline

- July 2023 – June 2026 (possible expansion through June 2027)

American Heart Association. Center for Telehealth™

UMMC Quality Improvement Project

- Increase referrals, enrollment, and retention in the RPM program

Recognition / Showcase

- Poster presentation at AHA Global Quality Showcase, November 2025
- Featured by AHA Center for Telehealth – storyboard filming

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Deliverables

Presentations

- **National & regional conferences:** SEARCH, ATS, Southern Regional Meeting
- **National organizations:** CTeL
- **Topics:** Diabetes RPM, Family Medicine RPM, COPD RPM, CHF RPM, Telehealth Preceptor Model
- **Formats:** Posters, oral presentations, webinars

Publications

- **Manuscripts in progress:** Diabetes RPM, Family Medicine RPM
- **Abstracts:** CHF RPM quality improvement initiative (Southern Regional Meeting / AJMS)

Total Scholarly Output

6 accepted conference presentations

2 abstract submissions under review

4 presentations scheduled and/or delivered

2 manuscripts in preparation

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Future Directions

Future Directions

- Clinical Expansion
  - Multimorbidity remote monitoring
  - Integration of lifestyle interventions plus medication management
    - Nutrition services
    - Behavioral health

- Innovation
  - AI-enabled risk stratification
  - Workflow optimization tools

Sustainability and Scalability

 Reimbursement Pathways	 Value-Based Care Alignment	 Health System Integration
RPM billing and reimbursement models	Supports quality metrics and population health goals	Embedded within clinical workflows and care teams

Key Takeaways

- RPM improves chronic disease outcomes in rural populations
- Pharmacist-integrated remote monitoring strengthens medication management
- Programs demonstrate scalable and sustainable telehealth care models
- Positioned for next-generation digital health innovation

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